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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/575,973

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EXAMINER

WATTS, JENNA A

ART UNIT

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1794

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,973	Applicant(s) SHIRADE, TESUYA	
	Examiner Jenna A. Watts	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,7,9,11,13,15,17 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7,9,11,13,15, 17 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. **Claims 1-3, 7, 9, 15 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoashi et al. (Japanese Publication No. 56-121462) in view of Niimi (Japanese Publication No. 07-236461).**

4. Regarding amended Claims 1 and 3, Hoachi teaches a method for sterilizing and producing a fish-paste product (see English Abstract of JP 56-121462) by agitating and processing fish materials in the presence of ozone air (Page 1, lower left column of Foreign Publication JP 56-121462). Thus, it is understood that the ozone and raw materials of the fish-paste product are in contact with each other during the processing

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of the fish paste. Hoachi teaches that the ozone gas is fed through an ozonizer into a hermetically sealed agitator that contains the raw materials of a fish-paste product, the agitator containing a blade that agitates and grinds the raw materials into a fish-paste product in the presence of the ozone (see Page 1, Claim 1, Page 3, upper left column and Page 3, Figure 1 of Foreign Publication JP 56-121462), thus the ozone gas can be seen to be stimulated by the movement of the blade and raw materials of the fish paste product. Hoachi may not specifically refer to the materials of the fish-paste product as raw, but teaches the processing and production of boiled fish paste, fried fish balls, etc.(see English Abstract of JP 56-121462) that are all cooked products, thus it is understood that prior to processing the materials of the fish-paste product are raw.

5. Regarding Claims 1 and 3, Hoachi does not teach the addition of ozone gas-containing microbubbles generated in water to the raw materials of the fish paste, and further does not teach the coating of the interfaces of the bubbles with tissues composed of raw materials, thereby maintaining the longevity of the ozone gas-containing microbubbles and giving stimulation to a part of the ozone gas-containing microbubbles thereby rupturing coating shells of the ozone gas-containing microbubbles while said ozone gas-containing microbubbles are in the fish-paste product, thereby sterilizing the fish-paste product by the formation of active oxygen and free-radical species.

6. Niimi teaches a method of sterilization of foodstuffs (see Page 1, Paragraph 1 of machine translation of JP 07-236461), whereby ultra-fine bubbles of ozone are mixed with and dissolved in water (See Page 1, Paragraph 4 of machine translation of JP 07-

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236461), forming a treated water, and this treated water, containing the ultra-fine bubbled ozone, contacts the bacteria that is adhered to foodstuffs and sterilizes it (See Page 1, Paragraph 4 of machine translation of JP 07-236461). Ultra-fine bubbles of ozone are deemed synonymous with micro-bubbles of ozone.

7. Niimi teaches that for the ultra-fine/micro bubbles of ozone in water, the gas-liquid contact increases remarkably and it can accomplish, at a high speed, a sterilization treatment where the treated water, dissolved with microbubbles of ozone, is able to travel to all the corners of the surfaces of foodstuffs, and the foodstuffs are then sterilized (Page 4, Paragraph 18 and Page 5, Paragraph 25 of machine translation of JP 07-236461). Furthermore, Niimi teaches that the microbubbles of ozone adhere to a solid in treated water easily (Page 5, Paragraph 25 of machine translation of JP 07-236461). Therefore, it would be expected, that the microbubbles of ozone are penetrating the solid foodstuff, thereby creating a coating or a shell composed of raw materials of the fish-paste product, thereby maintaining the longevity of the ozone gas-containing microbubbles, absent any evidence to the contrary. Furthermore, since Applicant discloses that ozone gas present in the microbubbles is released into surrounding tissues of the fish-paste product and that this ozone gas is rapidly converted by autolysis into oxygen and in this process, the ozone gas transiently forms active oxygen species and free radical species (see instant specification, page 7, Paragraph 2), it would be expected that in the method of Niimi, when the ozone gas is released into the foodstuff and the foodstuff is sterilized, this would be due to the dissolution of the ozone gas into the foodstuff and the conversion of the ozone gas to

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the claimed active oxygen and free-radical species, absent any evidence to the contrary.

8. Niimi further teaches that this process occurs in a germicidal treatment tub containing fluid mixing equipment that enables the microbubbles of ozone to be uniformly supplied into the treated water (Page 5, Paragraph 26 of machine translation of JP 07-236461), thereby allowing movement, and thus stimulation of the ozone gas containing microbubbles, which would be expected to result in the rupturing of the coating shells of ozone gas containing microbubbles.

9. Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made, for the method of sterilizing fish paste, as taught by Hoashi, to have included adding water containing microbubbles of ozone, because Niimi teaches that foodstuffs can be quickly and effectively sterilized using water containing microbubbles of ozone because the water containing ozone is able to penetrate to all the corners of the foodstuffs, thereby sterilizing any bacteria present. One of ordinary skill in the art would have been motivated to add water containing microbubbles of ozone in order to quickly and effectively insure the sterilization of a food, such as fish paste, so that it is safe for the consuming public.

10. Regarding Claim 2, Hoachi in view of Niimi are deemed to teach germ-free anti-bacterial fish paste products because Hoachi in view of Niimi teach a method of sterilizing a food paste using ozone microbubbles (see English Abstract of JP 56-121462), thereby producing a germ-free anti-bacterial fish paste. It is noted that Applicants' Claim 2 is written in a product-by-process format and as such, it is the

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novelty of the instantly claimed product that needs to be established and not that of the recited process steps. In re Brown, 173 USPQ 685 (CCPA 1972); In re Wertheim, 191 USPQ (CCPA 1976). Regarding Claim 2, since the product shown by these references is a germ-free anti-bacterial fish-paste product, the product is met.

11. Regarding Claim 7, Hoachi in view of Niimi is deemed to teach that the tissues include protein and lipid contained in the fish-paste products because Hoachi teaches that the fish paste can be made up of fillets or other fish meat (see Hoachi, Page 1, lower right column of Foreign Publication JP 56-121462), which would be expected to contain both protein and lipids, absent any evidence to the contrary. Furthermore, Applicant discloses that tissues in raw materials of the fish-paste product refer mainly to protein and lipid (See instant application, Page 6, lines 1-2).

12. Regarding Claim 9, Hoachi in view of Niimi teach that the stimulation comprises blending, mincing and processing of the fish meat into a paste food in the presence of ozone inside the agitator with the blade (see Hoachi, English abstract of JP 56-121462). Thus, the raw materials would be rubbing together due to the agitating action of the blade inside the agitator. According to Merriam- Webster's Online Dictionary, pestling can be defined as pounding, grinding, crushing, stamping or pressing and is deemed synonymous with the actions taught by Hoachi because both result in the production of a fish paste product. Thus, Hoachi in view of Niimi are deemed to meet the limitations of Claim 9.

13. Regarding Claim 15, Hoashi in view of Niimi teach that the stimulation comprises heating raw materials of the fish paste product because Hoashi teaches the preparation

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of boiled fish paste and fried fish balls (see Hoachi, English abstract of JP 56-121462), Boiling and frying are methods of heating, and thus stimulating, raw materials.

14. Regarding new Claim 19, Hoashi in view of Niimi are taken as cited above in the rejection of Claims 1 and 9. Since Hoashi in view of Niimi teach the claimed method using the action of grinding the fish meat into a paste food in the presence of ozone, which reads on the action of pestling, and Applicant discloses that the ozone gas-containing microbubbles contained in raw materials of the fish paste product are not wholly ruptured but partially stimulated and further teaches that the method of stimulating is preferably carried out by pestling of the raw materials (see instant specification, Page 8, Paragraphs 2 and 3), it would be expected that the method of Hoashi in view of Niimi, does not rupture all of the ozone gas-containing microbubbles, absent any evidence to the contrary.

15. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hoashi et al. (Japanese Publication No. 56-121462) in view of Niimi (Japanese Publication No. 07-236461), and in further view of Ogata, et al. (Japanese Publication No. JP 11-221007).

16. Hoashi in view of Niimi are relied upon as above for the rejection of Claim 1.

17. Hoashi in view of Niimi is taken as cited above in Claim 1 but do not teach that adding ozone gas-containing microbubbles to raw materials of the fish paste product comprises spraying a mist of water containing the ozone gas-containing microbubbles.

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18. Ogata teaches a method of obtaining high sterilizing effects at a low cost by efficiently ensuring an ozone component is brought into contact with animal meat, while decreasing installation (facility) costs (see English Abstract of JP 11-221007). Ogata teaches that the ozonated water is sprayed into a fine mist state onto the animal meat in order to sterilize it.

19. Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made, for the addition of ozone gas containing microbubbles in water to raw materials of fish paste as taught by Hoachi in view of Niimi, to have comprised spraying a mist of ozone containing microbubbles because Ogata teaches that spraying a mist of ozone containing water is an effective and low cost method of sterilizing meat products, as well as to reduce installation and facility costs in production. One of ordinary skill in the art would have been motivated to use a mist of water containing ozone in the sterilization of fish paste in order to cost effectively sterilize the food products, while minimizing production costs and maximizing profit.

20. Claims 11 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoashi et al. (Japanese Publication No. 56-121462) in view of Niimi (Japanese Publication No. 07-236461), and in further view of Swart et al. (U.S.P.A. 2002/0192340).

21. Hoashi in view of Niimi are relied upon as above in the rejection of Claim 1.

22. Regarding Claim 11, Hoashi in view of Niimi do not teach that the stimulation comprises high frequency irradiation of the raw materials of the fish-paste product.

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23. Swart teaches a method for reducing a microbial burden on a food product that includes contacting a food product with an antimicrobial agent, such as ozone (Page 6, Paragraph 58), via spraying or immersion in the antimicrobial agent (and Page 17, Paragraph 176) and irradiating the food product (Page 1, Paragraph 2) using gamma and x-rays (Page 1, Paragraph 6), which are known forms of high-frequency radiation. Swart teaches that the method is appropriate for fish products of various forms, including processed meats, formed products, minced products, etc. (Page 2, Paragraph 23). Swart teaches that in certain embodiments, contacting the food with an antimicrobial agent and irradiating produce a synergistic reduction in the microbial burden on the food product (Page 2, Paragraph 12). Swart further teaches that at the present time, irradiation of food product is the only commercially viable technology sufficiently effective at destroying harmful microbes or insects on or in raw or ready to eat product (Page 1, Paragraph 4). The radiation from the high frequency waves would be expected to generate the stimulation.

24. Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made, for the method of sterilizing a fish paste product, as taught by Hoashi in view of Niimi, to have comprised the stimulation of the raw materials of the fish-paste products via high frequency radiation, as taught by Swart, because Swart teaches that high frequency irradiation is the only commercially viable technology sufficiently effective at destroying harmful microbes in raw products, and further teaches that there is a synergistic effect when used with an antimicrobial agent such as ozone. One of ordinary skill in the art would have been motivated to combine the technologies

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of ozone and high frequency irradiation, as taught by Swart, in order to effectively destroy harmful bacteria on ready to eat products, such as fish paste products, in order to create products safe for consumption.

25. Regarding Claim 17, Hoashi in view of Niimi teach that the raw materials of the fish paste product are further processed into a paste food following the ozone treatment and the rupturing of the coating shells of the ozone gas containing microbubbles (see Hoashi, English abstract of JP 56-121462) but do not teach that the product is packaged and further subjected to the stimulation to rupture coating shells of the ozone gas-containing microbubbles contained in the fish-paste products, thereby sterilizing the fish paste product.

26. Swart teaches that when the treatment with the antimicrobial agent precedes irradiating, any of a variety of processing steps can be conducted between irradiating and treating with the antimicrobial agent (Page 7, Paragraph 66). Swart further teaches that the food product can be packaged before irradiating (Page 7, Paragraph 66). Therefore, since Swart teaches the stimulation, it follows that this would result in the rupturing of the coating shells of the ozone gas-containing microbubbles contained in the fish-paste products, thereby sterilizing the fish-paste product.

27. Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made, for the method of sterilizing of a fish-paste product, as taught by Hoashi in view of Niimi, to have further comprised packaging and stimulating via irradiation, as taught by Swart, because Swart teaches that foods can be packaged

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prior to receiving high frequency irradiation, which is the only commercially viable technology sufficiently effective at destroying harmful microbes in raw products, and further teaches that there is a synergistic effect when used with an antimicrobial agent such as ozone. One of ordinary skill in the art would have been motivated to combine the technologies of ozone and high frequency irradiation, as taught by Swart, in order to effectively destroy harmful bacteria on packaged ready to eat products, such as packaged fish paste products, in order to create packaged products safe for consumption.

28. Claims 13 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hoashi et al. (Japanese Publication No. 56-121462) in view of Niimi (Japanese Publication No. 07-236461), and in further view of Ikeuchi (U.S. Patent No. 4,622,228).

29. Hoashi in view of Niimi are relied upon as above in the rejection of Claim 1.

30. Hoashi in view of Niimi do not teach that the stimulation comprises microwave irradiation of raw materials of the fish-paste product.

31. Ikeuchi teaches a method of making a crab leg – like paste stick product (Column 1, lines 28-29), wherein the product is heated by the radiation of a microwave oven (Column 1, lines 39-40 and Column 2, lines 42-43). Ikeuchi teaches that, by using microwave radiation as the heat source, the prior art methods of heating in boiling water or steam are not required and the processing space can be reduced effectively and further teaches that it is preferred that the heating apparatus be a microwave oven in

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order to reduce the cooking time (Column 3, lines 27-31). The radiation from the microwave oven would be expected to generate the stimulation.

32. Both Hoashi and Ikeuchi are solving a similar problem of preparing a seafood based paste-like food product.

33. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention for the stimulation to comprise microwave radiation of the raw materials of the fish paste product because Ikeuchi teaches a method of making a seafood paste product using microwave radiation in order to reduce the cooking time and reduce processing space, as compared to prior art methods of heating. One of ordinary skill in the art would have been motivated to use microwave radiation for the source of the stimulation for the raw materials of the fish-paste products in order to decrease cooking time, thereby maximizing production and profits generated.

Response to Arguments

34. The 112 2nd rejections set forth in the office action mailed on 3/17/2009 have been withdrawn in light of Applicant's amendment filed 9/28/2009.

35. It is the position of the Examiner that amended Claim 1 is found to be obvious in view of the prior art previously applied for the reasons set forth above. The balance of the rejections set forth in the office action mailed on 3/17/2009 have been maintained.

36. Regarding Applicants' argument relating to the prior art of Hoashi in view of Niimi teaching the coating of the ozone microbubbles with the tissues of the raw materials of the fish paste, it is pointed out that Hoashi teaches grinding the fish paste in the

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presence of ozone air and Hoashi in view of Niimi teach contacting a fish paste with water containing ozone microbubbles and using fluid mixing equipment, which is considered an application of physical stimulation to the microbubbles, thereby sterilizing the fish paste. Therefore, since the method taught by Hoashi in view of Niimi parallels the method which is claimed by Applicant (see Example 1 of instant specification, Page 12, where fish and water containing ozone microbubbles are combined and pestled), the method taught by Hoashi in view of Niimi would be expected to function in the same way as Applicant, resulting in the formation of a shell of the raw materials of the fish paste around the ozone microbubbles, as claimed by Applicant.

37. Regarding Claims 11-15 and the limitations of the different methods of stimulation, the claims state "comprising" language, therefore, additional forms of stimulation, such as the grinding or mixing taught by Hoashi in view of Niimi are not precluded from the method steps of Claims 11-15. Furthermore, irradiation and heating methods are known to be used for food sterilization, and the prior art provides motivation for adding such methods to a food processing method in order to provide enhanced sterilization of the food. Therefore, since Applicant discloses that the different methods of stimulation that provide stimulation to the ozone microbubbles include heating and irradiation, it would be expected that the ozone microbubbles in the method of Hoashi in view of Niimi would be stimulated by such heating or irradiation methods as well.

38. If view of the above mentioned facts and Applicant's amendment, the office action is made final and is deemed proper.

Conclusion

39. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

40. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

41. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jenna A. Watts whose telephone number is (571) 270-7368. The examiner can normally be reached on Monday-Friday 9am-5:00pm.

42. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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43. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. SAYALA/

Primary Examiner, Art Unit 1794

/Jenna A. Watts/

Examiner, Art Unit 1794

December 23, 2009